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ORIGINAL ARTICLES.

THE ELECTRO-MAGNET IN OPHTHALMIC PRACTICE, PRESENTING A MODIFICATION OF THE HAAB GIANT MAGNET.*

(CASE REPORTS.)

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Though the use of magnets to remove metallic fragments from the eye is an old practice, the general use of electro-magnets to-day is to be credited largely to Hirschberg and Haab.

To Hirschberg we owe also the practical form of the siderоscope, an instrument which remains valuable in determining the presence and location of metallic particles within the eye, even though the use of X-ray has become deservedly popular.

The localization of the foreign body should be the first step in any procedure with magnets. Clinical examination with focal light and ophthalmoscope is sometimes sufficient, the location and size of the wound always being considered.

Improved methods of X-ray localization are often relied upon exclusively; but that such confidence, especially in a negative result, may lead to discreditable failures is shown by the following case:

No. 1.—Jos. R., carpenter, aged 40, was injured in the left eye by a fragment of steel from a punch (April, 1910). He was taken at once to the City Hospital, where the use of a hand magnet brought no result whatever. A week later he went to an eye clinic where, after an X-ray photograph by an expert, he was again assured there was no foreign body in the left eye. No

*Presented at the Ophthalmic Section, St. Louis Medical Society, June 2, 1910.

test by a sideroscope or giant magnet was made, entire reliance being placed in the X-ray report and the negative result from the exposure to an inefficient magnet.

After prolonged treatment the left eye continued congested and tender and began to shrink, and the right eye (uninjured) began to show photophobia and blurring of vision.

It was three months after the injury when he was brought to me by his family physician. The left eye was shrunken and tender, the cornea nearly bisected vertically by a linear scar, along which the iris was firmly attached, extending three-fourths the way across from the upper limbus, no anterior chamber present. O.D. Hm. 1. V. 16/12; O.S. V. p. l. (faint).

An exposure to the giant magnet at this time was without result. As the eye was to be enucleated on account of the chronic uveitis and the beginning irritation of the good eye, no test with the sideroscope was made.

On enucleation of O.S. there was found imbedded in the orbit,

FIG. 1. Photograph of the Posterior Segment of the Eye with piece of steel protruding from the Solera. (Actual size.) Case No. 1.
a, Steel fragment. *o*, Optic nerve.

scarcely 2mm. to the temporal side of the optic nerve with its anterior one-third within the sclera, a fragment of steel about 10mm. long, 3mm. wide and 1mm. thick (see accompanying photograph).

It had passed through the eye and was stopped by the bony wall of the orbit, which explains the occasional symptom of something grating against the orbital wall when the eye was rotated.

Evidently we must not be too hasty in stating that no foreign body is present, even after an X-ray examination. Other tests such as the sideroscope and the giant magnet should be used.

I am confident that with the large size of the fragment and the favorable location of the wound of entrance in this case, an early exposure to a strong giant magnet would have resulted in

extraction of the fragment. The absence of any sensation on exposure to the magnet three months after the injury was due to the fact that the fragment was firmly encapsulated.

Considerable experience with the sideroscope here and at the University Eye Clinic at Kiel, Germany, where injuries by steel particles were rather frequent at the wharves for naval construction, has firmly convinced me of its value.

The depth of the fragment of such a size would not have hidden it; and obviously its being firmly imbedded would be without influence in the test by the sideroscope. A negative finding by other methods where the history permits the remotest suspicion of a steel or iron fragment in the eye should always be confirmed carefully in this simple manner.

I have seen a number of cases in which a more powerful modification of the Hirschberg hand magnet, by Dr. A. E. Ewing, was used with gratifying success.

However, there are certain fundamental objections to the small magnet. The lack of power must be made up by bringing the tip of the magnet almost immediately into contact with the fragment. With accurate localization this is easier to accomplish than formerly; but, if the localization be slightly inaccurate and the scleral incision made at the wrong spot, or if the fragment is in the posterior segment of the eye, or loose in the vitreous, etc., the tip of the magnet will need to be introduced into the eye and shifted about, causing new damage to the tissue, opening new avenues for infection and seriously jeopardizing the chances for a good result.

These are the points insisted on by Haab, who in 1892 began the systematic use of the so-called giant magnet.

The following case is the only one in which I have used the hand magnet:

No. 2.—Jessie P., October 25, 1907, aged 36, blacksmith's helper. An hour ago, while hammering out a tool on an anvil, a fragment struck O.S. Examination showed a broad angular wound, each arm of the angle about 2½mm. long and situated on the nasal side 4mm. from the corneal limbus. Ophthalmoscope showed the vitreous chamber full of blood, only a dim marginal fundus reflex being obtained on the opposite side with a widely dilated pupil. Sideroscope showed a positive reaction most marked in inferior segment.

The injury being very recent, the hand magnet of Dr. A. E. Ewing with smooth, flat sterilized tip, was introduced into the

original wound, and after a little manipulation the fragment (size 10x5x1mm.) was withdrawn and the conjunctiva was closed over the wound.

The fragment was placed at once in a culture tube of bouillon. Three days later no growth could be noticed.

The immediate result was a good one, the wound healed by first intention and the vitreous seemed to be getting clearer. Vision equal to direction of hand movement at nine feet. He was kept under close observation for two months. Disappeared for three weeks.

When he returned, having failed to give any attention to his eye meanwhile, though he insisted there was no discomfort, the use of atropine showed extensive adhesions. He continued careless in regard to his eye, which he said gave him no trouble.

I saw him in May, 1908, five months after the accident, and vision equaled direction of hand movement at six feet. The globe was slightly shrunken and injected. Ophthalmoscope showed large cyclitic membrane behind the lens. At the time I advised enucleation, to avoid the danger to the right eye. He has not returned.

The attack of slow iridocyclitis was probably due to a mild infection which, with the severe mechanical injury of the eye by the large fragment, was sufficient to render recovery hopeless. How much infection was carried into the eye by the few jabs of the small magnet no one can tell. The lack of growth in the bouillon seemed to prove the fragment innocuous.

In addition to the danger of further damage and infection, the hand magnet is often a sad disappointment on account of its lack of power. When it has been depended upon and is the only means at hand for the extraction, the failure to accomplish it may mean the loss of the eye or at least prolonged agony for both patient and operator until more efficient means can be supplied.

The following case which came to me on July 6, 1910, fully illustrates the situation:

No. 3.—Claude P., injured in the left eye by fragment from chisel in the act of opening a paint can, was taken at once to Dr. X., a competent ophthalmologist in his own city. The fragment was easily visible imbedded in the iris on the temporal side.

The eye was prepared for operation and the corneal incision ideally placed 2mm. from the temporal limbus, but all efforts to dislodge and extract the fragment were fruitless. The hand

magnet he had relied on failed. The operator then brought his patient to my office in this city, a distance of more than 100 miles, and he was taken to St. Luke's Hospital at once.

With the patient lying comfortably on the operating table, the corneal incision was carefully reopened. The giant magnet, to be described later, was brought alongside and with its long tip and a loose sliding tip, held in my hand in order to so reduce its force as to pull no faster than might be desired, the point of the latter was brought to the corneal incision. The fragment turned and presented the tip of its long axis as usual, and was extracted with little loss of aqueous and no iris prolapse, as there would have been almost certain to be had it been necessary to introduce the magnet tip or instruments into the anterior chamber, to dislodge the fragment. It was a small fragment weighing barely 0.002 gram. A small bleeding spot on the surface of the iris showed where the fragment had been imbedded.

I regard it of great importance that the patient could lie still while the magnet was used rather than to have him sitting up in front of the magnet, as Haab directs in the use of his instrument.

Within a few moments, the anterior chamber was restored, the iris remained widely dilated, and the dressing was then applied. The patient was removed to his bed on a stretcher and kept prone until the following day, thus reducing to a minimum the danger of pressure on the globe, gaping of the wound, or of iris prolapse. The first dressing showed the anterior chamber intact and full dilatation of the pupil—no synechia.

The following day the patient returned to his home. A week later his physician reported his condition improved and vision good. It is too early to predict the final outcome. But the chances for a good result are best always if the fragment is removed at the earliest possible moment.

Hirschberg last year reported a case of "unusually small fragment" removed from the lens, to the *Berliner Ophthalmologische Gesellschaft*. The weight of the particle of metal was given as 0.001 gram. It was stated that the giant magnet failed in the attempted extraction, which was then accomplished with a preliminary iridectomy and the hand magnet, the tip being introduced into the anterior chamber.

A case in which the metallic fragment proved to be a shade under 0.001 gram in weight and had been imbedded in the lens for some days, scarcely attracting the patient's attention, came

under my care in December, 1909. The history of the case proves that our giant magnet was not only successfully used to extract the fragment but proved to *have greater attractive power for this very small particle, than did a specially constructed hand magnet* and several other giant magnets which were first tried. It was these failures that led to the construction of the magnet herein presented.

No. 4.—Louis L., aged 36, came to my office December 10, 1909, because there seemed to be something in his right eye. He was not certain but thought it might have been a small particle that struck the eye some three or four days before while engaged in breaking up some castings. At the time of the occurrence he paid almost no attention to it and for a day or two forgot it altogether; but the sensation of a foreign body in the eye returned and brought him for treatment.

At first there seemed to be only a corneal abrasion O.D.; but later, after the use of the mydriatic, the wound in the anterior capsule of the lens and small iritic adhesion at that point—the lower margin of the pupil showed there was a perforating injury. Deep down in the lens near the equator a metallic reflex seemed to show the presence of the fragment. An X-ray localization, by Dr. R. D. Carman, fully confirmed these findings. Lens showed beginning opacification below—clear above—good view of fundus—no disturbance. Vision O.D. 16/24; O.S. 16/15.

When the giant magnet of Dr. J. W. Charles (modified Volkmann) was applied, a faint pulling was felt occasionally by the patient but there was no positive ocular demonstration that the fragment was dislodged.

Thinking that repeated longer exposures might be helpful they were tried, usually twice a day, for fifteen to forty-five minutes each. After a week, no progress being apparent, another magnet (large Victor) was tried.

The Victor magnet showed strong action and would probably have been sufficient to remove the fragment if a preliminary iridectomy had been done. It was not possible to dislodge the fragment and bring it into the anterior chamber. However, as the Victor magnet was not regularly installed in an operating room, but was temporarily housed in a room used as pathological and urinalysis laboratory awaiting the extension of electric wiring, and as I was determined to operate on this eye, which showed no sign of infection, only under the most favorable conditions, I consulted an electrical expert, Dr. P. I. Chandyssen, of the Pan

Electric Service and Appliance Co., of this city, on the matter of building a stronger magnet than either of those used thus far.

He at first suggested that a small fragment would be just as easily moved by a small magnet, especially if the current be strong enough. He accordingly prepared such a magnet, using a strong direct current, but a test showed it absolutely useless in this case.

The first exposure to the new giant magnet which he then constructed caused a small hæmorrhage from the iris in the lower segment, showing that the fragment was dislodged and also the necessity for making a preliminary iridectomy. The magnet was then installed in the operating room at St. Luke's Hospital. The iridectomy was done and the fragment then brought out of the wound easily without inserting any tip into the anterior chamber. It was simply necessary to bring a movable tip to the wound to attract this very minute fragment. The result was excellent though the extraction was two weeks after the injury. Later the lens became opaque and swollen and after two months a linear extraction was done, with the ultimate recovery of perfect vision.

When last seen a month ago, which was six months after the injury, vision in this eye with correcting glass was 16/15 and the eye entirely without any sign of irritation.

Another case of extraction of a steel fragment from the lens with a giant magnet through the wound of entrance, four days after the injury, with recovery of perfect vision may be here recorded.

No. 5.—Jas. C., aged 40. Four days ago struck a chisel with a hammer trying to loosen it and something struck O.S. A general practitioner, who was consulted at once, overlooked the nature of the injury altogether. Nothing done since. Small scar at center of cornea. Posterior synechia at lower margin of pupil. After dilatation a small glistening foreign body could be seen in the lens immediately opposite the corneal wound. Lens opaque and swollen. Exposure to the Volkmann magnet (Dr. Charles's modification) resulted in the prompt extraction of a small sliver of steel 4mm. long, 0.5mm. thick, through the original wound. Ten days later a linear extraction was done to remove the soft swollen lens. Recovery was uneventful. When last seen, one month ago, vision was equal to 16/15 in the injured eye with a correcting glass.

In two cases where a severe infection was present staphylococ-

cus albus vaccine was used. Its use seemed to aid in the temporary control of the symptoms, but I doubt if it was of any greater value.

No. 6.—George M., aged 18. June 17, 1909, an hour ago was struck O.D. with a fragment from one of two hammers which he was playfully knocking together. Wound 3mm. long transverse to limbus on nasal side. Prompt exposure to the Volkmann magnet failed to bring the fragment back to the wound or to the anterior chamber. It was then delivered through a scleral incision in the inferior nasal quadrant. It measured about 3 mm. in length and 1.5mm. in thickness. Pain the following day was the first warning of the infection. The white mass in the upper portion of the vitreous due to the beginning infiltration could be seen with the ophthalmoscope. By the second day the pain was intense and resisted all usual methods for its control. Enucleation was refused. An injection of staphylococcus albus vaccine (400000000, P. D. & Co.) was followed by complete relief from pain. Six injections of this amount were made in the next six weeks during which the eye seemed to become entirely quiet. Six months after the accident the eye again became irritable. Three injections of the staphylococcus albus vaccine, given in ten days, seemed without effect on the course of the trouble. The eye was then enucleated.

No. 7.—George P., aged 30. March 14, 1910, injured two days ago while chipping castings. Right angular penetrating wound in lower nasal quadrant of cornea O.D. Iris prolapsed and infected; pus in the anterior chamber. Lens swollen and cloudy. Patient insisted that he had been assured by the "Company Doctor" that there was nothing in the eye, but exposure to the new giant magnet was followed by the prompt extraction of a rough, irregular fragment 7mm. long, 2mm. wide, and 1mm. thick. After an iridectomy the wound healed and the eye seemed to become quiet. Two weeks later pus appeared in the pupil coming from behind. Injection of staphylococcus vaccine was without effect. During an interval when I did not see the case, this intraocular abscess was drained by Dr. John Green, Jr., who kindly looked after it for me for a time. The eye has since then become a shrunken, sightless globe, free from tenderness. I believe it should be enucleated but that has thus far been refused.

My most recent extraction, five days ago, is of interest because the fragment was quite large, round, and almost perfectly smooth.

It seemed improbable that such a fragment would enter the eye. It emphasizes, as does the previous case, that no reliance can be placed on the patient's opinion as to whether the fragment entered the eye or not.

No. 8.—Edward D., aged 39. July 12, 1910. Range-maker's helper. Struck in left eye by a "burr" from a punch. He and his fellowworkmen are sure the piece did not enter the eye. His companion even claims to have been struck on the forehead by the same piece in its rebound. There was a semi-circular wound in the upper nasal quadrant of the cornea with iris prolapse. The anterior chamber was filled with blood and there was free bleeding from the torn iris into the conjunctival sac.

Prompt exposure to the giant magnet at St. Luke's Hospital

FIG. 2.
Manner of using the Haab Giant Magnet.
(Page 231, *Augen-Operationslehre.*)

resulted in the delivery of the perfectly round, smooth "burr" of steel, 5mm. in diameter and 1.5mm. thick, through the original wound. The prolapsed iris was excised and eye bandaged. The severe injury and the likelihood of infection by the large fragment of cold steel reduce the chances for a good result to a minimum; but it is a satisfaction to know that no instruments were introduced into the eye, as necessary with a weak magnet.

During the five days that have elapsed since the injury and

operation there has been no untoward symptom, but it is too early to make a very hopeful prognosis. Also, by doing the operation at a hospital instead of in the physician's office, as frequently done, the patient could be kept perfectly quiet and in a recumbent position continuously until the corneal wound had healed, thus avoiding the danger of further prolapse.

It has been my privilege twice to assist other ophthalmic surgeons in the successful use of this magnet.

FIG. 3. NEW GIANT MAGNET.

(St. Luke's Hospital. Special adjustable operating table, in use at the time, is not shown). *a*, Shorter tips. *b*, screws for adjustment of height.

The illustration shows incidentally that instead of swinging the heavy magnet over the patient's face, the same advantages can be had by simply turning the face to one side.

In the first case, that of a boy, a patient of Dr. M. H. Post, the fragment had entered in the ciliary region on the nasal side. It was removed through a scleral incision in the inferior temporal quadrant. At last report a fair amount of vision was retained.

In the second case, that of a young man, a patient of Dr. N. M. Semple, the wound of entrance was in the ciliary body and the fragment lodged at the posterior pole of the eye, near the macula.

It could be clearly defined through the uninjured cornea and lens with the ophthalmoscope. Trials with a Volkmann magnet having failed to dislodge it, we used this new magnet and promptly brought the fragment to the lower temporal quadrant of the sclera. An incision made at the point seen to be bulging resulted in the delivery of the piece without loss of vitreous or the penetration into the eye of anything except the point of the Graefe knife. There was in this case a severe uveitis which was temporarily benefited by the use of staphylococcus albus vaccine. Later the eye began to shrink and was tender. It was enucleated five months after the injury.

This collection of cases is in no sense a statistical report and no deduction of percentages of success or failure is permissible. Many cases of successful extraction result in failure to save the eye because there has been so severe an injury or so violent an infection by the accident that the eye was doomed from the beginning. It is always our duty to give such a case the benefit of the doubt and make the extraction with proper care, so that we may not add to either the mechanical injury or bring about new infection.

The new giant magnet (illustrated in Fig. 2) was built by the Pan-Electric Service and Appliance Co. The carriage on which it is mounted was made by the Smith-Davis Mfg. Co. It has been installed at St. Luke's Hospital, where a direct current suitable to its use, and of a variety of volume, is accessible. The magnet is thus placed at the disposal of any physician wishing to use it.

At the time the specifications were given the measurements of the Haab magnet were not at hand, but it is rather striking how closely they coincide. The diameter of the soft iron core in our magnet is 11.5c.m., in the Haab magnet it is 10c.m. The length of our magnet is 55c.m. increased to 60c.m. by the long tip, that of the Haab magnet is 60c.m. The copper wire coil is 50c.m. thick and will take a current of 500 volts easily.

No test for its total power of attraction is necessary. It is not because it can attract a larger mass, that a giant magnet is more useful than any other in ophthalmic practice. This feature of the magnet is never called into play, for the obvious reason that the mass of any fragment which could be imbedded in the eye is always infinitesimal compared even to the mass of a small magnet.

The purpose in using the giant magnet is to reach farther and attract the particle more powerfully. There is a widely accepted

fallacy that a small magnet will exert as much attractive force on a fragment of small mass as would the largest one. The difference in the force may elude measurement if the piece is very small but that does not prove anything. The Haab magnet is based on experimental work done by Prof. Haab in company with Prof. Kleiner of the Physical Laboratory at the University of Zurich.

The "Innenpol" magnet of Mellinger has been devised to magnetize the particle in the eye, in situ, by placing the patient's head into the coil. When the current is turned on it should make two electro-magnets, the one being the fragment in the eye and the other the bar of iron (which may be of a variety of sizes) which is manipulated in front of the eye to attract the foreign body. Although more spectacular, there seems to be no gain in this procedure over an efficient giant magnet. Comparison of statistical reports fails to prove any special advantage. Every magnet will temporarily magnetize every particle of susceptible metal in its field. More cannot be hoped for from the "Innenpol", provided that the force of the giant magnet fathoms the depth of the orbit, which it will do if made as strong as it should be. In addition the more or less cumbersome mass of the coil may be a hindrance to some necessary operative intervention accompanying the extraction.

Instead of materially diminishing the diameter of the coil of our magnet at each end, a uniform thickness is maintained throughout. Power is conserved in this way which is lost in the Haab magnet, where there is extensive tapering at each end. (Fig. 3.) In cases where this power is not needed the long tip shown in the photograph of our magnet may be used and a very large field for observation obtained. If the full strength is required and the shorter tips are used, experience has shown there is still sufficient room for observation of the progress in attempted extraction.

In considering the applicability of the giant magnet, it is well to remember, as Haab points out, that its power can be reduced to nil by simply increasing the distance of the patient from it. There seems to be no very good reason for using the giant magnet to dislodge a particle and bring it within reach and then substitute the small magnet, as has been practiced, unless it is that the giant magnet is so mounted as to be quite unwieldy. In this respect I believe we have made an improvement. The unfortunate results from violent extraction seem to have been due to

failure to appreciate the power of the magnet, and could have been avoided by an easy regulation of its distance.

This magnet is mounted on a carriage of tubular steel on wheels. It can readily be pushed into any position and adjusted to the height of the operating table.

It is my rule to set the tip of the magnet a little higher than the level of the patient's face when he is lying down. Every part of the head and face except the eye can be covered with sterile towels or a gauze mask. I then hold the patient's head in my two hands and am free to move it up to the tip of the magnet or away from it as may be indicated. With the thumb and finger of the hand nearest the eye to be exposed, the movements of the eyelids can usually be controlled, or a German silver speculum may be introduced. As the patient is prone on the table the operator is not so likely to be annoyed by the movement of other parts of his body as if he were sitting in front of the magnet, as shown by comparison of Figs. 2 and 3.

I have always left the making and breaking of the current to a trained and reliable assistant. Thus a word or sign from the operator can accomplish his wishes in this respect as quickly and, it seems to me, with less distraction for him than if he attempted to do it with his feet.

If any operative interference becomes necessary, the patient's head is simply allowed to rest on the table as usual. More favorable conditions to proceed could not be found.

If the magnet can be of service at any stage of the operation a turn of the head or the shift of the pillow will bring the eye to its tip; or holding a steel probe or other instrument to the tip of the magnet its force can be directed to the exact spot where it is desired. The accompanying illustration does not more than suggest the variety of positions that can be had by shifting the magnet from one side to the other.

Various operators have suggested certain methods or plans for magnet operations. It is well to study them carefully if for no other purpose than to impress the fact that in the successful use of magnets there must be some plan. It is beyond the scope of this report to discuss these methods, but the surgeon who simply brings his patient as close as possible to the magnet and turns on the power without knowing in what direction his pull is most certain to bring results and that with the least damage to the eye, and who does not use the rapid interruption of the current to dislodge a fragment which has failed to respond to a steady pull, is destined to be disappointed at times.

RESUME.

Careful diagnosis and localization, and when in doubt the use of every known means to obtain certainty, including the sideroscope, are very essential. Especially should the general practitioner, who generally is the first to examine the case, not having the means for diagnosis at hand, refrain from giving a negative opinion.

In any case an electro-magnet of ample power is always to be preferred. The giant magnet can be so constructed and its force so regulated that it will serve all purposes.

While emergency work is at times successful under extremely bad conditions, operations requiring the opening of the eye should be done with every possible care that can insure freedom from infection and provide for perfect rest afterward. Such can be only obtained in a first-class hospital.

OCULAR MIGRAINE AND DISEASE OF THE FRONTAL SINUS.*

By Dr. Oertel,
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Translated by Adolf Alt, M.D.

The relations between the diseases of the eyes and diseases of the nose and its accessory cavities have been the subject of intense study since the 80's.

Leber, and especially Ziem, Kuhnt, Gruenwald, Hajek, Zarniko, Eversbusch[1] and Gerber[2] showed in exhaustive papers that organic diseases of the eye are relatively frequent in close connection with simultaneous diseases of the nose and accessory sinuses and that at times they are caused by the affection of the nose.

However, not organic diseases alone may be of nasal origin; functional disturbances, also ocular migraine with or without scintillating scotoma, and contraction of the visual field, have in some cases been proven to be the sequelæ of a disease of the nose or of the accessory sinuses.

As Moebius[3] stated the results of the clinical studies concerning the cause of ocular migraine are not yet conclusive.

In most cases neuropathological elements are the probable factors. But Snow[4] has pointed out that even in functional disturb-

*Berlin Klin. Wochenschr. No. 24, 1910.

ances a nasal affection may at times be an ætiological factor, after he had succeeded in curing a series of patients suffering from headache and migraine by treating their noses.

Yet, cases of undoubted ocular migraine due to nasal disease are still rare. This prompts me to report such an observation.

It is that of a young man, 19 years of age, of healthy parentage, bodily well developed in correspondence to his age. No cases of migraine have been observed among his near and more distant relatives.

Patient was perfectly well up to his 14th year. In 1905, having taken cold, he for the first time suffered from intense headache in the right frontal region. At the same time the right eye showed a vivid injection of the bloodvessels and pronounced photophobia. The right supraorbital nerve was very painful on pressure. During the attack he had a moderate catarrh of the nose. Patient was unable to do any mental work and was confined to bed. From 1905 to 1907 such attacks, which announced their coming on several hours ahead by pulling pains in the right frontal region and pressure on the right eye, appeared twice a year and lasted for two or three days. Since 1908 they have become much more frequent. Such an attack now came on about four times a year and lasted four days. Since 1909 patient has had to suffer from migraine almost every month. The headache grew much more severe, as also the eye symptoms, and held on for fully six days. It was always the right eye which suffered, never the left. There was at the same time a copious discharge from the right nose, so that patient had to blow the nose often. No sneezing attacks appeared. Later on the pain went from the right frontal region over towards the left. The patient's considerable bodily weakness, which always remained after these attacks, was very noticeable. There was no fever during the attacks.

From the first the patient was treated internally. In the beginning pyramidon, trigemin, etc., reduced the symptoms. Later on, when all internal remedies failed, electric treatment with constant current (anode on right eye) was instituted, but without success. Between 1908 and 1909 he had nine attacks the reports on which I received from his physician.

On November 19th, 1909, patient was sent to me by the ophthalmologist for examination. The history of the case aroused, of course, a suspicion of an affection of the right frontal sinus.

On examination of the nose the lower conchæ showed moder-

ate hypertrophy, yet he could breathe freely through the nose. There was on either side neither mucus nor pus in the lower nasal passage. The right middle turbinate was strongly developed; it touched with its convexity the nasal septum, while its free lower margin appeared much rolled in laterally, so that only a small slit between it and the lateral nasal wall remained. The mucous membrane of the middle turbinate was normal. After shrinking the tissues with cocain-adrenalin the bulla ethmoidalis was found not to be much swollen. In the middle nasal meatus no secretion was visible. Neither the percussion nor the palpation of the walls of the frontal sinus gave any signs of a disease of this sinus. The inspection of the pharynx and the rhinoscopic examination, too, elucidated no pathological conditions.

I ordered the patient to return as soon as an attack should show itself.

This happened on December 7th, 1909. About 6 a.m. the prodromal symptoms had appeared, as pressure in the right frontal region and slight lacrimation of the right eye. When I saw the patient at 10 a.m. the right eye was considerably injected and teared continually. There was great photophobia. Patient stated that he saw everything through a mist and complained of intense pains in the right frontal region.

The anterior wall of the frontal sinus was very painful on percussion, even a slight pressure against the floor of the frontal sinus elicited severe pain. On examination the nose showed surprising changes in the right half. The mucous membrane of the lower turbinate was red and swollen; in the lower meatus there was some mucous secretion. The mucous membrane of the middle turbinate looked glassy and swollen. Thin fluid mucous secretion came through the barely visible slit between the free margin of the middle turbinate and the lateral wall of the nose. After cocainizing the mucous membrane a larger quantity of secretion came from the middle meatus, but the pain was not reduced. Rhinoscopically mucous secretion could be seen to flow down from the posterior edge of the middle turbinate.

Based on these conditions it was easy to make the diagnosis of catarrh of the right frontal sinus.

Rather for topographic reasons, than in order to make the diagnosis certain, I took a Roentgen picture of the skull. The frontal sinus was asymmetric, the right side much larger than the left. Small trabeculæ of bone divided the right sinus into several parts. While the left sinus showed sharply defined outlines, the right one appeared undefined.

The therapy was clear. Resection of the bent margin of the middle turbinate with a cold wire loop and opening up of the enlarged bulla ethmoidalis. Since after this the probe could not yet enter the frontal sinus, several ethmoidal cells had to be removed. Then the probe could be pushed into the right frontal sinus. During the following hours much mucous secretion flowed out. The patient soon felt much freer. About three hours after the operation all symptoms had disappeared, except the injection of the right eye and a slight feeling of pressure in the right frontal sinus.

Six months have passed since then and no new attack has appeared. Patient is now doing his military service and is fully able to undergo all its hardships.

We had in this case to deal with a chronic catarrhal inflammation of the right frontal sinus which for years at certain, gradually decreasing, intervals had produced the symptoms of ocular migraine. Scintillating scotoma and the contraction of the visual field, as Kuhnt[5] found it in purulent affections of the frontal sinus, had not been observed by the ophthalmologist, but asthenopic symptoms at the height of the attacks.

The authors are not agreed as to the manner in which such ocular migraine comes about.

Ziem[6] thinks that a passive orbital hyperæmia and venous stasis in the choroid and ciliary body produces these functional disturbances. Kuhnt is convinced that reflex conditions cause the lacrimation, photophobia and headache. Gruenwald believes that it is a state of irritation in the neighborhood of the optic nerve accompanied by hyperæmia, which causes the asthenopic symptoms. Zarniko holds the position that nothing but reflex processes are at work which take their origin from the sensible nerve endings in the nasal mucous membrane. This reflex irritation later on leads to the ocular changes.

Based on my observation I agree with Zarniko.

In consequence of disease of the mucous membrane gradually mucous secretion was accumlated in the frontal sinus and finally led to pressure symptoms. When the frontal sinus was tensely filled the secretion was pressed through the hiatus semilunaris, which in consequence of the enlargement of the bulla ethmoidalis and the rolling in of the margin of middle turbinate was quite narrow, and now through irritation of the nerve ends caused the attack of migraine. Whether the pressure of the secretion alone, or the œdematous imbibition of the mucous membrane of the tur-

binate or both of these were the acting factors, cannot be decided. As soon as by the flowing out of some secretion the pressure was released, the attack ceased and left only a state of bodily weakness behind, which after a short time gave way to perfect well being.

It is astonishing that, in spite of the long standing of the disease of the frontal sinus, only a catarrhal inflammation was found. In most cases of catarrhal inflammation of some duration the secretion, in consequence of intercurrent acute attacks of coryza, is changed first to a muco-purulent and then to a purely purulent one. We then find an empyema of the frontal sinus. As Hajek[7] states, it is even possible that there is for days and weeks a purely purulent secretion and later on again a purely mucous one.

Our case shows how important is the examination of the nose even in functional diseases of the eyes. Repeated observation, especially during the attack, may sometimes reveal an affection of the nose or its accessory cavities and thus render possible the removal of the functional disturbances.

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MEDICAL SOCIETIES.

OPHTHALMIC SECTION,
ST. LOUIS MEDICAL SOCIETY.

Meeting of June 1, 1910.

Dr. F. L. Henderson, presiding.

A Giant Magnet, New Design; Removal of Very Small Fragments from the Lens.—Case Reports.—By Dr. W. H. Luedde. (See this number.)

The removal of all metallic fragments from the interior of the eye is much simplified by the recent development in X-ray localization. For fragments of iron and steel corroborative evidence may be obtained by means of the sideroscope.

Careful work with the X-ray may give more accurate localization but the sideroscope gives an approximate idea of the mass.

Extraction of the foreign body from the eye cannot, in every case, result in saving a good eye. By the very nature of the injury the destruction of tissue, and the resulting inflammation, often makes enucleation necessary even when the foreign body has been successfully removed.

A very small fragment causing only a slight perforation may carry infection into the interior of the eye, resulting in ultimate destruction.

Electro-magnets.—The use of the ordinary bar of magnetic iron was recommended two thousand years ago in the Agur-Veda of Sucruta. The modern electro-magnet is divided into two general classes; the hand magnet (Hirschberg), and the giant magnet (Haab). The former has relatively little attractive power except in immediate proximity to its tip, whereas the latter may be used to dislodge and bring forward particles imbedded at the opposite pole of the eye.

The use of the small magnet often requires the introduction and manipulation of its tip in the eye, with corresponding damage to the vitreous and other tissues and the increased possibility of infection.

The giant magnet makes possible the extraction by bringing the tip of the magnet to the original wound or to an incision made at the most desirable location, and drawing the fragment to it.

Methods of Extraction.—The simple exposure of the injured eye to the force of a magnet is rarely sufficient to extract the fragment. The procedure must be based on the consideration of the size and location of the foreign body, the location of the original wound, and the time that has elapsed since the injury. Although in certain cases, seen early, the extraction through the original wound is practicable, especially with the giant magnet, without waiting for X-ray localization, as a rule the latter is a great help in planning an extraction.

The new giant magnet herein presented, is of superior force, having shown greater attractive power in two cases previously exposed to other giant magnets. It was so constructed as to gain the greater power necessary in these operations. It is so mounted that it can be brought up to the operating table and adjusted to various heights. A variety of removable tips permits adjustment from the least to the fullest power.

Operations requiring the opening of the eyeball should be done with as great care as laparotomies because the iris, ciliary body, chorioid and vitreous are as liable to infection as the peritoneum. For that reason operations with the magnet should be done in a good hospital operating room with all proper precautions.

The installation at St. Luke's Hospital, which has its own electric plant and direct current is entirely satisfactory.

Case reports included: three of larger fragments with much injury and infection—extraction successful—eyes lost in each case through general uveitis—two cases of steel fragment in lens producing cataract—successful extraction by giant magnet (one fragment of barely one milligram in weight extracted two weeks after injury). Cataract operation followed by perfect vision (16/15 with glasses) in each case.

DISCUSSION.

Dr. N. M. Semple said that the case referred to by Dr. Luedde gave a good illustration of the power of his magnet. A man reported to Dr. Semple on the 12th day of January of this year, after having received a wound from a piece of iron from the end of a hammer, while hammering on an automobile. There was a small wound near the inner limbus, and at that time there was very little, and that local, ciliary injection. The vitreous was still clear, so that it was possible to locate a wound near the pos-

terior pole of the eye, about four milimeters to the temporal side of the macula. The skiagraph showed the piece of steel embedded in the sclera at this point. Dr. Semple had tried to extract the fragment immediately,—the patient having come to him about two hours after the occurrence of the accident. This was attempted with Dr. Charles' magnet, but there had been no effect. The next day Dr. Semple used the magnet demonstrated by Dr. Luedde, and as stated by Dr. Luedde in his paper, the piece of steel was dislodged from the sclera and brought to the tip of the magnet, being withdrawn at the lower temporal side of the globe. The interesting feature to Dr. Semple was the fact that this magnet was strong enough to dislodge a piece of steel that had been deeply imbedded in the posterior wall of the eye. As to the amount of damage which had been done by this manipulation, it was very little. There had been no hæmorrhage of any kind into the vitreous, and there had been only a slight, local hæmorrhage at the site of the operation. The vitreous, for the first few days, was clear, but at the end of the fourth day infection began, and resulted in a very severe panophthalmitis. It was unfortunate that the infection could not have been avoided. It would probably have been impossible to have extracted the fragment without a magnet of this strength. Dr. Semple, however, had not had enough experience to say whether it would have been better to have drawn such a fragment through the lens into the chamber, but he thought the injury would have been greater if an attempt had been made to take it out by the latter route. He had had some experience with the vaccine therapy, and had used it rather energetically in this case (i.e., the staphylococcus vaccine) and an improvement was the result. Within the first forty-eight hours there was an increase of the symptoms followed by a decided improvement. The case had progressed slowly, resulting eventually in a shrinking of the eyeball from chronic uveitis. It was Dr. Semple's impression that they had, in this strong magnet, something that would enable one to get better results than they had had heretofore, especially in those cases where the steel was embedded deeply in the sclera, near the posterior pole of the eyeball. Such a magnet as that of Dr. Luedde would enable one to dislodge a piece of steel which could not be budged by a magnet of weaker power and shorter pulling range.

Dr. J. H. Gross was very much pleased to know that they had a very strong magnet in St. Louis. He had always felt a little uneasy regarding cases with pieces of steel in the eye, because

he had never known exactly where he would find a suitable magnet. When he read the announcement of Dr. Luedde's paper Dr. Gross had hoped that possibly a new idea in magnets had been carried out. In 1905 there had been published in the *Zeitschrift fuer Augenheilkunde* an article on magnets, coming from the University of Basel, or Bâle, in which they had been experimenting with a new magnet. The magnets that had been used before this had all been patterned on the plan which had been followed out in Dr. Luedde's magnet. This magnet, however, was somewhat different, the coil being arranged in a circular manner. The core was movable, it really required no fixed iron core; any piece of soft iron could be introduced, if necessary, and the magnet could also be used without the core, by simply putting the patient's head within the magnet itself. With the assistance of Herr Klingelfuss, who was probably an expert mechanic, this magnet was constructed. They had been experimenting with this magnet for sometime before this article was published. Since that time the magnet had been used, and only within the last year or so there had been another report on the use of this magnet with cases, which emanated from the clinic of Basel. Dr. Gross had brought the article, which was well illustrated, and would be glad to have the doctors look at it, for the illustrations would tell them more than he could tell them in many words.

Dr. Clarence Loeb said that in the *Archives d'Ophtalmologie,* 1909, p. 193, Mellinger had described a magnet something on the order of the one spoken of by Dr. Gross, and had spoken of it very favorably. This magnet created a magnetic field within the circle of the wire, and any metallic body introduced in that field became magnetized. Mellinger in describing his method stated that he put the patient's head within the circle, and then took a pencil or bar of iron and moved it around within that field. Of course, this magnet had an advantage over the stationary magnets. The strength of the magnet was dependent upon the amount of electricity that could be sent through this coil and the size of the bar of metal that was used in extracting. It seemed to Dr. Loeb that this magnet was much simpler, and was certainly less expensive than those magnets built on the old style.

Dr. Loeb said that one of the advantages of the magnet to which he had referred was that one could use an ordinary knife, after making the corneal incision, as the magnetizing body to attract the fragment.

Dr. Luedde, in closing, said that the point brought out by Dr.

Gross was interesting. It must be remembered that any electro-magnet would magnetize any piece of iron or steel that came within its field, and that the piece is brought toward the tip of the magnet. If that piece of iron happened to be very small, the direction of its pull would be true, but the amount of its pull would be less, i.e., the force with which it is pulled depends upon the strength of the magnet, and its own mass, and the distance between the two. This magnet was so constructed that either a 500-volt or 110-volt could be used. Dr. Wiener had stated that he had never had the same amount of force from his magnet since he had used the 110-volt. Dr. Luedde recalled a similar experience. Dr. Luedde stated that one reason for installing the magnet in St. Luke's Hospital was that they had their own electric plant and a direct current. Dr. Luedde believed that a powerful magnet was the only thing, at times, which did the work, and if one had a powerful magnet it was easy enough to increase the distance from the eye so that one could reduce the pull as much as desired.

THE OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Thursday, May 5, 1910.

President, Dr. G. A. Berry, in the Chair.

Case of Traumatic Paralysis of an External Rectus Muscle in a Child, aged 16 months.—Mr. N. Bishop Harman.

W. T., aged 16 months, perfectly healthy in every other respect, was first seen on April 20th, 1910, with complete paralysis of the left external rectus. The history was that six days previously the child had fallen, striking the back of his head, and when picked up both eyes appeared to turn inwards; the mother also noticed that when offered a toy, he would grasp it with one hand and stretch out the other to take another imaginary object, thus suggesting double vision. The interest in this case was the question as to where the lesion was situated; most probably the 6th nerve was torn or stretched by the sudden displacement of the basal cranial bones.

Family Choroiditis.—Mr. G. T. Mould.

Milly R., aged 34, came with the history of misty sight for 6

months, which had lately grown worse. The vision in both eyes was 6/9 partly. Both fundi showed innumerable pale yellow spots, non-pigmented, round about the disc and macula, with some heaping up of pigment near the fovea.

Optic Nerve Atrophy, and Left Temporal Hemianopsia Associated with Tumor (? Cystic) of Pituitary Body.—Mr. L. V. Cargill.

W. A. B., male, aged 35, came in October, 1908, for treatment, and on examination it was noticed that the discs were blurred and pale; the vision at that time was finger counting in the right eye, and 6/12 in the left. He also noticed that he bumped into people approaching him from the left side. In February, 1910, the discs were seen to be pale and atrophically cupped, and the vessels small; R.V. was perception of light, and L.V. 6/9 partly; the left field was limited to the nasal half. The patient had observed for the last two years that his hands had been enlarging, and the feet for the last 15 months; together with some alteration in his face and widening of the jaws; the whole head had increased in size, the face being broad with prominent maxillæ.

A skiagram showed marked absorption of bone in the region of the sella turcica such as would be caused by enlargement of a growth in this region.

Optic Atrophy following Injections of Orsudan—Mr. Ernest Clark.

The patient, who was in the Lock Hospital on October 19th, 1909, had been receiving injections of orsudan gr. x on alternate days, when after the ninth injection the sight began to fail, and, in spite of the stoppage of further injections, the vision became worse. The pupils reacted normally, though somewhat sluggishly, and the knee-jerks were natural; the vision varied from hand movements to counting fingers.

Ophthalmoscopic examination showed typical primary optic atrophy, but the vessels were not reduced in size, while there were degenerative changes at both maculæ.

Heterochromia Iridis associated with Paralysis of the Sympathetic in Early Life.—Mr. M. S. Mayou.

Mr. Mayou showed 2 cases representing this condition, one case having come under his care at the Central London Ophthalmic Hospital and one at Paddington Green. The first one was a

male, aged 3½, who came with a history of drooping of the left eyelid soon after birth, and difference in the color of the two irides; the right was a brown shade, while the left was a bluish tinge. In every other respect the child was quite healthy. Both pupils reacted, but the left was smaller and did not dilate so fully in the dark as the right, nor did the left dilate under the influence of cocaine; no K.P. was discovered. There was slight ptosis, but little alteration in sweating on that side of the head; the fundi were perfectly normal. Labour in connection with birth had been prolonged, and instruments were used.

The other case was a child, aged 6, at whose birth forceps had been used, who came for treatment on account of drooping of the right eyelid. The right pupil was smaller than the left, bluish in color compared with the latter, which was brown; the right pupil did not dilate so fully as the left, and was unaffected by cocaine, which, however, produced the usual effect on the left. There seemed to be some diminution of sweating and lacrimal secretion on that side of the face.

Since this defect was noticeable immediately after birth, it was evident that the normal development of pigment, which does not take place usually till a child is several weeks old, had been arrested; and since in both cases forceps were used during labor, some birth injury suggested itself as the cause in these cases.

Recent Amaurosis with Unusual Cupping of the Disc, in a Youth. —Mr. J. H. Tomlinson.

Colored drawings were shown of this case, whose vision 11 years ago was 6/9 in each eye, and to whom glasses of +3 D had been ordered. The sight in the right eye was reduced to no perception of light, while that in the left was 6/5 with correction. The corneæ measured 11mm., and there was deep cupping of the discs in both, 7 D in the right and 5 D in the left. The field in the left eye showed slight contraction along the nasal side.

A Case of Congenital Arterial Loop Projecting into the Vitreous. —Dr. A. S. Worton.

PAPERS.

A New Operation for Glaucoma—Small Flap Incision.—Col. H. Herbert.

Col. Herbert described this operation, which he had found very successful for cases of chronic glaucoma, so far as he was

able to judge at present. The method employed was as follows: By means of a subconjunctival incision the sclerotic was entered 1.5 mm. from the limbus, and an opening 2 mm. long was made parallel to the corneal margin, and then from the extremities of this two forward cuts were made, extending up to the limbus; the flap thus formed becomes displaced forwards to prevent reunion, and the small tongue of sclerotic tissue shrinks, resulting in the formation of a filtering scar.

In 1907 Mr. Herbert had operated in this manner on 6 cases, and of the 5 results known, 4 had succeeded and 1 failed; the eyes were mostly blind from absolute glaucoma, and the tension in two of the cases had been very gradually reduced, thus indicating the tendency to a permanent result.

During the last 5 months Messrs. Herbert and Laws had operated on several more cases of a similar nature, and out of 14 recent operations a complete iridectomy had twice been performed in addition to the ordinary flap operation. A special shovel-shaped knife had been devised for the purpose, though its use had not been attended with altogether satisfactory results.

Mr. Herbert then discussed the results compared with other filtering and fistulous scars, such as his own wedge isolation method.

Congenital Word Blindness—Mr. J. Herbert Fisher.

This defect is supposed to be due to congenital maldevelopment of the visual memory centre for words, usually resident, in right-handed persons, in the region of the left supra-marginal and angular gyri. Such cases were usually educated by means of a method such as Miss Mason's "Delightful Reading Box."

Mr. Fisher described four cases, three of whom were boys, in which congenital word blindness was present; the visual acuity was good in all cases except in one where there was a squinting eye; in others there was a history of some near relative having a difficulty in spelling correctly, and in one of them the left side of the head and forehead was noticed to be smaller than the right since birth.

The cases may be said to fall into two groups:—

(1) Those in which there is failure of the visual memory centre for words situated in the left angular and supramarginal gyri.

(2) Those in which the same centre may have been injured by a very limited meningeal hæmorrhage during the stress of parturition.

In the first group there may be found evidence of an inheritance of a familial defect, as in the case previously reported by Mr. Fisher in the *Ophthalmic Review,* 1905, p. 135, and in one of those mentioned in the present paper. If hereditary there was no sex limitation noticed.

The cases belonging to the second group are allied to those following birth injuries. It has been found that slight meningeal hæmorrhage has occurred during parturition and that the condition has been found more common in first-born children, more especially in males. It is a fact that word blindness shows a striking preponderance in male children, and the cause is probably a meningeal hæmorrhage over the region of left angular gyrus.

Some Cases of Hypopyon Keratitis treated with Pyocyanase.—Dr. A. Bronner.

Dr. Bronner described six cases of hypopyon keratitis which he had treated by the local application of pyocyanase, a brownish fluid prepared from broth cultures of the bacillus pyocyaneus. In all cases the treatment has proved strikingly successful, but atropine and hot fomentations had been used in addition to the special application. Dr. Bronner considered pyocyanase superior to the cautery or carbolic acid in this class of case.

MALCOLM L. HEPBURN.

Thursday, June 9th, 1910, at 8 p.m.

The President, Dr. G. A. Berry, in the chair.

Extensive Subconjunctival Rupture of a Buphthalmic Eye: Recovery.—Mr. C. Blair.

J. G., aged 5, came with a history of having fallen against the iron wheel of a perambulator, and struck the right eye. On examination there appeared a large vertically-placed rupture on the inner side of the eyeball extending half-way round the globe, and situated just behind the ciliary region. A pressure bandage was applied, and the wound soon healed; but this eye was afterwards distinctly more prominent than the other.

The buphthalmos in this case was associated with other congenital defects, and the child was actually undergoing treatment for a clubhand.

Guttate Iritis.—Mr. R. W. Doyne.

This condition was described in a case shown before the Society last December, and it was observed to be more common in gouty people. Mr. Doyne regarded the condition as one not usually recognized, and certainly very rare. It was shown that adhesions do not necessarily occur at the situation corresponding to the guttæ, which disappear or alter in position and appearance in the course of a few weeks. In this patient the lens capsule was seen to be freely dotted with iritis pigment.

Test Lenses for the Dark Room.—Mr. R. W. Doyne.

These lenses were set in frames which were made with various marks on the rims and handles of different shapes, so that by merely feeling the rims or handles one was enabled to ascertain the strength of glass which was being used, thus obviating any necessity for examining the lenses by sight.

Vertical Nystagmus, with movement so fine as to escape notice with the naked eye.—Mr. A. H. Thompson.

This was the case of a boy, aged 11, who had some refractive error, and the vision, when corrected, was 6/12 in each eye, and the fundus was normal. The nystagmoid movements were so fine that they could only be detected with the ophthalmoscope.

Microscopical Sections of an Eye with unusual Yellow Patches in the Iris, shown at the last Meeting.—Messrs. E. Treacher Collins and A. C. Hudson.

A. M., aged 19, lost the sight of the left eye from ophthalmia neonatorum, the right eye being also affected at the same time.

On examining the left eye, there was a large, oval, densely white opacity of the cornea at the lower and outer part, with some straggling new vessels passing into it, and to which the iris was adherent. In the substance of the iris were several yellow-colored patches with sharply defined margins and of an irregular shape, situated about midway between the ciliary and pupillary margins, but the anterior surface of the iris was not raised over them. On investigation some blood-vessels were seen to course through them, which did not appear to be of new formation, but merely the normal iritic vessels showing up more clearly than usual on the light-colored background; they were lost to view where they passed into the unaffected stroma. The vision in the eye was no P.L., and the tension normal. That in the right was

6/18, and, although there was nothing abnormal about the iris, the cornea showed some nebulæ, and there was lateral nystagmus.

Lymphatic Growth of Conjunctiva cured by Radium.—Mr. W. Lang.

A drawing of this case, which was shown at a previous meeting of the Society, showed that, whereas both eyes formerly exhibited a similar appearance, or, indeed, the left was somewhat worse than the right; as a result of radium treatment, the condition of the left showed considerable improvement.

A Case of Raynaud's Disease with Retinal Hæmorrhage, and other Changes in the Retinal Vessels.—Dr. Rayner Batten.

A female patient came for treatment for failure of sight in the left eye of three or four weeks' standing. In April, 1910, she had sudden failure of vision, from which she partially recovered, followed by another attack in a month's time, accompanied by sudden pain in the eye. With the ophthalmoscope there were seen several hæmorrhages in the fundus, and the upper temporal artery appeared to terminate suddenly where crossed by the corresponding vein, and became lost in an area of retinal disturbance.

Raynaud's disease had existed for eleven years, and two toes were gangrenous.

New Growth involving the Lacrimal Gland.—Mr. Blair.

A patient, aged 42, had first noticed the right eye prominent three months ago. The vision in the right was counting fingers, and the left 6/6. There was no pain, the movements of the globe were limited, and in the region of the lacrimal gland was felt a hard fixed swelling, neither tender nor nodular.

Complete Congenital Dislocation downwards of the Lens.—Mr. Blair.

Secondary Contracting Scirrhus of the Orbit.—Mr. Arnold Lawson.

In this case, three years ago, the right mamma was removed for scirrhus of the retracting type, and the breast had been noticed to be undergoing cicatricial contraction for six years. About ten months ago it was noticed that the right eye was be-

coming fixed, and the upper lid began to droop, but there was never any pain. The vision was 4/60, and the fundus was very indistinctly seen. At the present time there was great retraction of the upper lid and eye, the lid drooped completely, and there was total loss of voluntary movement, except slight lateral movements; the lower lid was also fixed, but not retracted. There was a hard elastic resistance felt on pressure through the lower lid, evidently due to a swelling in the orbital cavity, and it suggested some deep cicatricial contraction in the orbit pulling both the lids and the eye backwards. The patient's general health was quite satisfactory, and there was no loss of flesh.

PAPERS.

Advanced Optic Atrophy following the use of Soamin and Orsudan for the treatment of Syphilis in Two Patients.—Mr. Ernest Clarke.

The first case was a man, aged 46, who was first seen in October, 1908, and had become infected in August of the same year. After ten injections of soamin gr. v. the sight began to fail; and in February, 1909, he had five more injections, when the sight again failed after the third. At the end of 1909 he had some mercury injections, and at the present time his vision was found to be only hand movements in the right eye, and 6/12 pt. in the other; while both discs showed optic atrophy of the primary type; the vessels were normal, and there was no other change.

The other case was a man, aged 49, who came under observation in October, 1909, having become infected in August. After receiving nine injections of orsudan his sight began to fail, and the vision in both eyes had become reduced to counting fingers. Both discs showed primary atrophy, and the vessels were practically normal; in addition there were degenerative changes in both maculæ.

Mr. Clarke alluded to similar cases already described by others—viz., by Major Ward, Bagshaw, van Someren, and Leudie and Blaikie; and mentioned that soamin was a sodium para-amido-phenyl arsonate, and orsudan was a sodium trimethyl tetra-acetyl amido-phenyl arsonate. It was probable that these drugs acted by producing degeneration of the ganglion cells of the retina, or possibly a secondary atrophy of a retrobulbar type.

Mr. Clarke urged greater caution in the use of these drugs, and careful attention to the general health before employing them.

Further Notes on Family Choroiditis.—Mr. R. W. Doyne.

Mr. Doyne remarked that he was preparing a family tree, some of the cases having been already described. The changes were mostly observed in the region of the disc and macula, but in other cases showed the margin of the disc mainly as solely affected, while, on the other hand, the macula in some cases was the only part where the condition was found. In one of the cases exhibited by Mr. Doyne there was a white spot, partly on the disc, showing that these areas were exudates, and not of atrophic origin.

Mr. Doyne summarized the condition as follows:—The first appearance of family choroiditis appeared in early adult life, though more commonly later. It might affect either the disc neighborhood or the macula region, or both. It consisted of circular patches of exudation, which increased during middle life, and at last set up some irritation and pigmentary disturbance, for, though pigment was not always present, in some cases there was a good deal to be seen. During this stage the sight was not much affected, but in old age there was some optic atrophy with corresponding failure of vision.

MALCOLM L. HEPBURN.

ABSTRACTS FROM MEDICAL LITERATURE.

BY J. F. SHOEMAKER, M.D.,

ST. LOUIS, MO.

OCULAR PALSIES IN TABES.

William Campbell Posey (*Jr. A. M. A.*, April 16, 1910) says that while the extra-ocular palsies due to tabes resemble in many ways those due to other causes, they nevertheless have certain characteristics which suggest very strongly the presence of tabes, although they are not peculiar to this disease. The first and most important of these characteristics is their transient tendency. This is particularly true of those palsies which occur in the early stages; they usually disappear after a period of time ranging from a few hours to two or three weeks. While those occurring during the later stages of the disease are generally permanent, yet even these may improve or even disappear entirely. Illus-

trative cases of this tendency are given. From his experience he estimates that the palsies occurring in the early stages of tabes disappear in about ninety per cent. of the cases. Concerning the initial symptom of tabes he states that Thomas found, in 111 cases of this disease which he analyzed, that diplopia was the first symptom in 6 cases while other eye symptoms occurred first in 14 cases. A second characteristic of tabetic ocular palsies is the tendency to recur either in the same muscle or perhaps in another one controlled by an entirely different nerve. While the palsy in some cases may disappear in a few hours in others it often persists for years and yet the muscle later regain complete power to functionate, a fact which ophthalmic surgeons should remember before being tempted to operate on the eye muscles of tabetics.

A third peculiarity of palsies due to tabes is that they do not follow ordinary rules, but are dissociated, particularly in the early stages of the disease. Thus Uhthoff found complete paralysis of the oculomotor in but 5 per cent. of all his cases. Uhthoff's figures concerning the relative frequency of the different muscles affected in tabes are as follows: the oculomotor was involved in 54 per cent of his cases, the abducens in 33 per cent., the trochlearis in 8 per cent. Ophthalmoplegia externa was found in 5 per cent. and isolated ophthalmoplegia interna in 5 per cent. In 60 cases Posey found the oculomotor affected 30 times, the abducens 6, and the trochlearis 2 times. In the other 22 cases the paralysis was of a mixed type. Complete unilateral oculo-motor paralysis was found three times. He found both external rectus muscles paralyzed in two cases. Most authors consider ocular palsy as one of the early symptoms of tabes, although it may occur at any time. Uhthoff considers it to be analogous to the appearance of the Argyll-Robertson pupil and optic atrophy. He has found this symptom in 20 to 22 per cent. of cases of tabes.

The pathogenesis of ocular palsies in tabes is not yet definitely known, but the author thinks that Fraenkel probably represents the views of most neurologists when he says "that these palsies are either pathologic occurrences of another nature than the general disease they are implanted on, or they are a part of the general disease." If they are of the first type they are primary or secondary nerve inflammation, while if they are of the second they are a primary degeneration of the sensory neuron.